بنام خداوند مهربان

COVID-19 and mangement autoimmune diseases

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Subjects?

- Challenges in COVID-19 ?
- Relationship between COVID-19 and autoimmune diseases?
- Autoimmune diseases after COVID-19 infection ?
- Association between DMARDs and hospitalisation for COVID-19?
- Factors associated with higher hospitalisation?
- Factors associated with COVID-19-related death?
- Practical approach treatment?
- Recommendations for Use of the COVID-19 Vaccine in Patients?

Rheumatic Disease

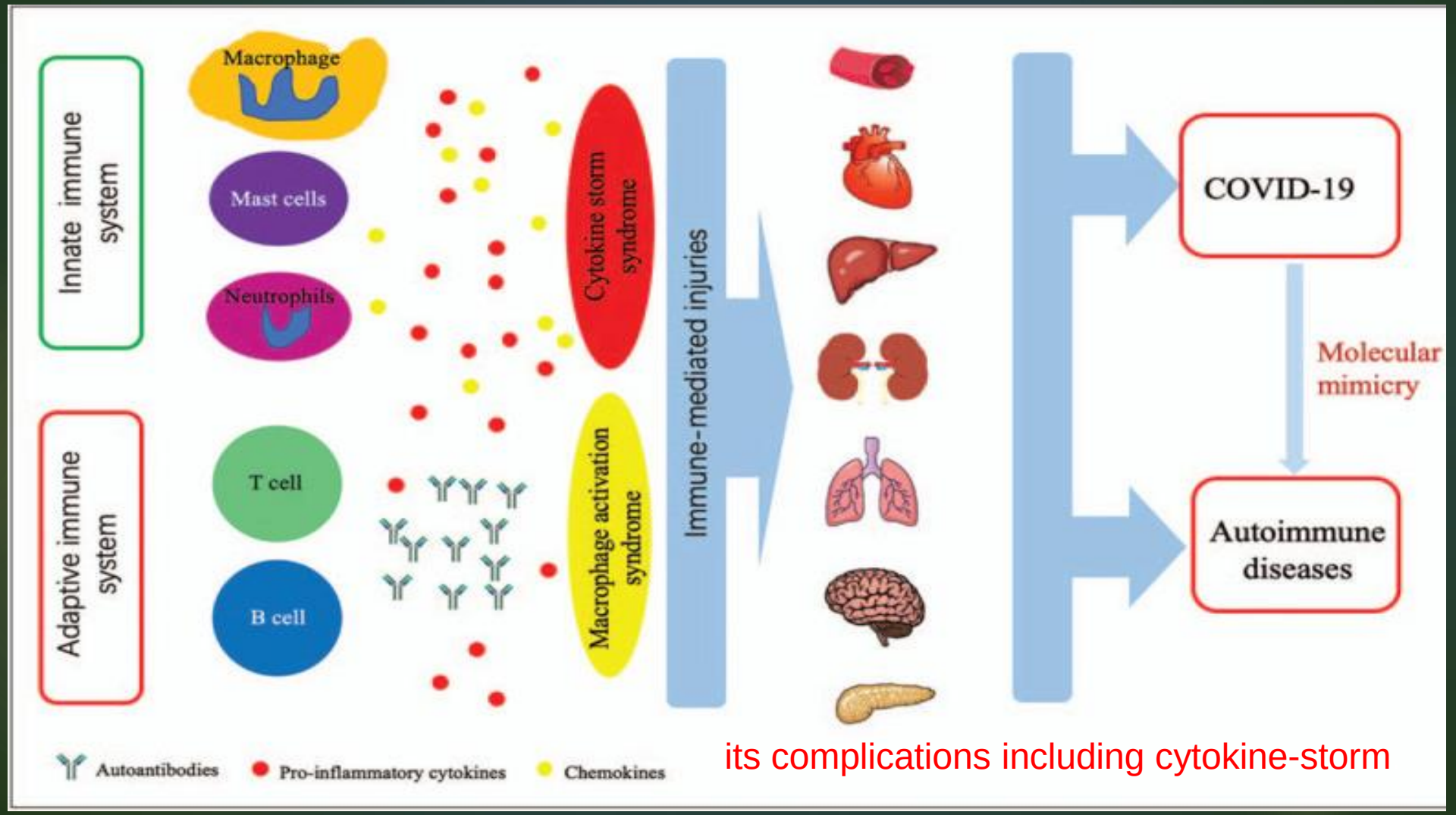
- Systemic lupus erythematosus (SLE)
- Rheumatoid arthritis (RA)
- Sjőgren syndrome.
- Dermatomyositis/polymyositis.
- Scleroderma/systemic sclerosis.
- Mixed connective disease/overlap syndrome.
- Ankylosing spondylitis.
- Psoriatic arthritis
- …….

Antirheumatic drugs

- **Nonbiologic DMARDs** (traditional or conventional) MTX, HCQ,SSZ,LEF
- **Biologic DMARDs**, recombinant DNA technology and generally target
- cytokines or their receptors or are directed against other cell surface molecules. include
- **TNF-alpha inhibitors**(etanercept, infliximab, adalimumab, golimumab,
- certolizumab pegol)
- **IL-6 receptor antagonists**: tocilizumab and sarilumab.
- **other biologic response modifiers** ,T-cell costimulation blocker abatacept (CTLA4-Ig)
- **anti-CD20 B-cell depleting monoclonal antibody** : rituximab
- **Targeted synthetic DMARDs**, JAK inhibitors (tofacitinib, aricitinib, upadacitinib),
- orally.
- **Glucocorticoids**
- **NSAIDs** ,

Similar immune reactions in SARS-CoV-2 infection and autoimmune diseases. Both COVID-19 and autoimmune diseases present with various clinical symptoms involving different organs

SARS-CoV-2 can trigger cross-reactivity through molecular mimicry, leading to autoimmunity in patients with COVID-19.



its complications including cytokine-storm

- COVID-19 ,challenges for healthcare providers and patients
- Direct burden it has placed on societies and health systems
- significant impact in the care of patients with chronic diseases
- In the field of rheumatology, required notable efforts
- patient care depending on local policy, hospital/clinic context, volume of clinical activity and available facilities/ staff
- Self-care is one of the crucial principles for overcoming chronic disease such as rheumatic diseases
- An effective vaccine is still pending

Relationship between COVID-19 and autoimmune diseases

- COVID-19 shares similarities with autoimmune diseases in clinical manifestations, immune responses
- Robust immune reactions participate in the pathogenesis of both disease conditions.
- Medications autoimmune rheumatologic diseases might have therapeutic effect in severe COVID-19 infections

- After COVID-19 :Guillain–Barré syndrome or systemic lupus , vasculitis , polymyositis
- SARS-CoV-2 can disturb self-tolerance and trigger autoimmune responses
- The infection risk and prognosis of COVID-19 in patients with autoimmune diseases remains controversial
- patient adherence to medication regimens to prevent autoimmune disease flares is strongly recommended.

Management of targeted DMARDs

- Most patients treated with subcutaneous and oral DMARDs can be safely monitored over telemedicine
- Reducing routine blood tests to the indispensable.
- Hospitals and national health systems might provide delivery of these drugs at home or at a local pharmacy, avoiding unnecessary travel to the hospital pharmacy

- In the case of intravenous therapies, prioritisation might be necessary
- Delaying treatment of patients with active CTDs and vasculitis with cyclophosphamide, rituximab, tocilizumab and belimumab may negatively impact the short-term outcome of these patients
- Patient admissions should be reserved for acute, severe rheumatic manifestations and kept as short as possible.

- Rheumatic disease may be at higher risk with COVID- 19:
- hospitalisation,
- complications
- death

- as hydroxychloroquine and interleukin-6 (IL-6) inhibitors, are being studied for the prevention and/or treatment of COVID-19

- Implications of COVID-19 for people with rheumatic diseases remain poorly understood.

COVID-19 Global Rheumatology Alliance (C19-GRA) physician registry Odds of hospitalisation

- factors associated with higher odds of COVID-19 hospitalisation:
- older age,
- presence of comorbidities and
- higher doses of prednisone (≥10 mg/day).

- Comorbidities such as hypertension, cardiovascular and diabetes had **higher** odds of hospitalisation

- Glucocorticoid use at a prednisone-equivalent dose ≥10 mg/day was associated with an increased odds of hospitalisation

- BMJ 2020;368:m1168.

Odds of hospitalisation

- Not see an association between prior NSAID use b/tsDMARD monotherapy to be associated with a lower odds of hospitalisation
- Not find a significant association between antimalarial use and hospitalisation
- NO significant benefit with either **hydroxychloroquine** alone or combined with **azithromycin** on clinical outcomes including mortality
- medRxiv 2020. &Gianfrancesco M, et al. Ann Rheum Dis 2020

factors associated with COVID-19-related death in patients with rheumatic diseases

- older age
- male sex
- Comorbidities
- moderate/high disease activity

importance of disease control in rheumatic diseases in the COVID-19

- Continuing rheumatic medications in the absence of COVID-19 infection or SARS-CoV- 2 exposure
- Most individuals with rheumatological diseases or on immunosuppressive therapies recover from COVID-19
-
- Arthritis Rheumatol 2020.

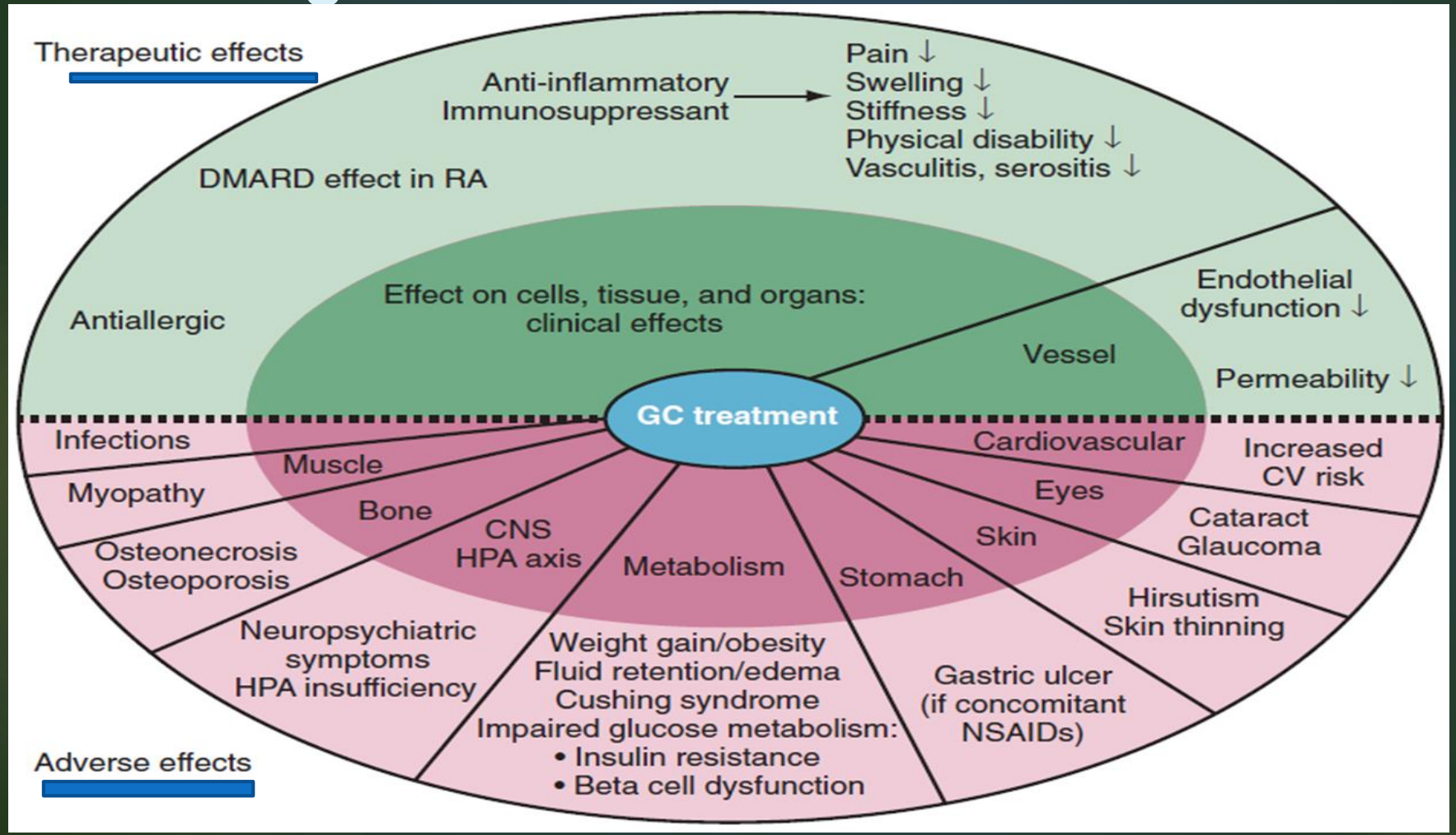
Conventional synthetic DMARDs

- ACR guidelines ; in the absence of COVID infection or exposure, DMARDs can be continued.
- In case of **exposure** to COVID-19,hydroxychloroquine and sulfasalazine may be continued,
- but stopping **methotrexate** or **leflunomide** in this situation.
- Risk of infection with bDMARDs is generally considered slightly higher (from **1.5- up to 2-fold**) compared with csDMARDs
- Beneficial effect of anti-TNF and IL-6 therapy in preventing severe disease

Corticosteroids

Cornerstone of for flares and initial treatment

disadvantage increased risk of infections



Recommendations for Use of the COVID-19 Vaccine in RMD Patients

- Beyond known allergies to vaccine components, there are no known additional contraindications to COVID-19 vaccination
- All RD patients should receive COVID-19 vaccination,(age ≥16)
- No preference for one COVID-19 vaccine over another(mRNA COVID-19 vaccines)
- patients should receive either vaccine available to them.
- patients should receive the second dose of the same vaccine,

ACR Board of Directors on February 8, 2021

Recommendations for Use of the COVID-19 Vaccine in RMD Patients

- Should not routinely lab testing to assess immunity to COVID-19 post-vaccination,
- Nor to assess the need for vaccination in a yet-unvaccinated person
- should continue to follow all public health guidelines (distancing and other preventive)
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ACR Board of Directors on February 8, 2021

Timing of Vaccination in Relation to COVID-19 Vaccination Administration in RMD Patients rheumatic and musculoskeletal disease

Medication	Timing Considerations for Immunomodulatory Therapy and Vaccination*	Level of Task Force Consensus
Hydroxychloroquine; apremilast; IVIG; glucocorticoids, prednisone-equivalent dose <20mg/day	No modifications to either immunomodulatory therapy or vaccination timing	Strong-Moderate
Sulfasalazine; Leflunomide; Mycophenolate; Azathioprine; Cyclophosphamide (oral); TNFi; IL-6R; IL-1; IL-17; IL-12/23; IL-23; Belimumab; oral calcineurin inhibitors; Glucocorticoids, prednisone-equivalent dose ≥ 20mg/day**	No modifications to either immunomodulatory therapy or vaccination timing	Moderate
Methotrexate	Hold MTX 1 week after each vaccine dose, for those with well-controlled disease; no modifications to vaccination timing	Moderate

JAKi	Hold JAKi for 1 week after each vaccine dose; no modification to vaccination timing	Moderate
Cyclophosphamide IV	Time CYC administration so that it will occur approximately 1 week after each vaccine dose, when feasible	Moderate
Rituximab	Assuming that patient's COVID-19 risk is low or is able to be mitigated by preventive health measures (e.g., self-isolation), schedule vaccination so that the vaccine series is initiated approximately 4 weeks prior to next scheduled rituximab cycle; after vaccination, delay RTX 2-4 weeks after 2nd vaccine dose, if disease activity allows	Moderate

RMD = rheumatic and musculoskeletal disease; IVIG = intravenous immunoglobulin; TNFi = tumor necrosis factor inhibitor; IL = interleukin; JAKi = janus kinase inhibitor; CYC = cyclophosphamide; RTX = rituximab; IV = intravenous; SQ = subcutaneous

Key messages

- use of DMARDs did not increase the odds of hospitalisation.
- people with rheumatic diseases who are older and/or have comorbidities have a higher odds of COVID-19-related hospitalisation.
- Anti-TNF treatment was associated with reduced odds of hospitalisation
- prednisone ≥10 mg/day higher odds of hospitalisation and infection
- There was no difference hydroxychloroquine, or NSAID use between those who were or were not hospitalised.
- most individuals with rheumatological diseases or on immunosuppressive therapies recover from COVID-19
- Methotrexate, Hold MTX 1 week after each vaccine dose
- JAKi , Cyclophosphamide IV, 1 week after each vaccine dose,
- Rituximab, 4 weeks prior to after vaccination,4 weeks after 2nd vaccine d

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